

SEQUENCE LISTING

(1) GENERAL INFORMATION:

(i) APPLICANT:

(A) NAME: GENSCI REGENERATION SCIENCES INC.  
(B) STREET: 201 - 5090 Explorer Drive  
(C) CITY: Mississauga  
(D) PROVINCE: Ontario  
(E) COUNTRY: CA  
(F) POSTAL CODE (ZIP) : L4W 4T9

(A) NAME: TAM, Cheuk Shing  
(B) STREET: 1072 Rectory Lane  
(C) CITY: Oakville  
(D) PROVINCE: Ontario  
(E) COUNTRY: CA  
(F) POSTAL CODE (ZIP) : L6M 2B7

(ii) TITLE OF INVENTION: BONE STIMULATING FACTOR

(iii) NUMBER OF SEQUENCES: 62

(iv) COMPUTER READABLE FORM:

(A) MEDIUM TYPE: Diskette, 3 1/2 inch, 1.4 Mb storage  
(B) COMPUTER: COMPAG, IBM PC compatible  
(C) OPERATING SYSTEM: MS-DOS 5.1  
(D) SOFTWARE: WORD PERFECT

(v) CURRENT APPLICATION DATA:  
APPLICATION NUMBER:

(vi) PRIOR APPLICATION DATA:

(A) APPLICATION NUMBER: US 08/763,458  
(B) FILING DATE: 11-DEC-1996

(2) INFORMATION FOR SEQ ID NO:1

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 36 amino acids  
(B) TYPE: amino acid  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1

Gly Ile Gly Lys Arg Thr Asn Glu His Thr Ala Asp Cys Lys Ile Lys  
1 5 10  
Pro Asn Thr Leu His Lys Lys Ala Ala Glu Thr Leu Met Val Leu Asp  
20 25 30  
Gln Asn Gln Pro  
35

(2) INFORMATION FOR SEQ ID NO:2

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 36 amino acids  
(B) TYPE: amino acid  
(D) TOPOLOGY: linear

662090"49822660

FEATURE:  
(A) NAME/KEY: Modified site

(B) LOCATION: ...2

(B) LOCATION: ...2  
(D) OTHER INFORMATION: /note= "Xaa is N-acetyl glycine"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2

(x1) SEQUENCE IDENTITY

Xaa	Ile	Gly	Lys	Arg	Thr	Asn	Glu	His	Thr	Ala	Asp	Cys	Lys	Ile	Lys
1				5					10					15	

Pro Asn Thr Leu His Lys Lys Ala Ala Glu Thr Leu Met Val Leu Asp  
20 25 30

Gln Asn Gln Pro  
35

(2) INFORMATION FOR SEQ ID NO:3

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 36 amino acids

(B) TYPE: amino acid

(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3

(xi) SEQUENCE

Gly	Ile	Gly	Lys	Arg	Thr	Asn	Glu	His	Thr	Ala	Asp	Ala	Lys	Ile	Lys
1				5					10					15	

Pro Asn Thr Leu His Lys Lys Ala Ala Glu Thr Leu Met Val Leu Asp  
20 25 30

Gln Asn Gln Pro  
35

(2) INFORMATION FOR SEQ ID NO:4

(i) SEQUENCE CHARACTERISTICS:

SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 30 amino acids

(B) TYPE: amino acid

(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4

Gly Ile Gly Lys Arg Thr Asn Glu His Thr Ala Asp Cys Lys Ile Lys  
1 5 10 15

Pro Asn Thr Leu His Lys Lys Ala Ala Glu Thr Leu Met Val  
20 25 30

(2) INFORMATION FOR SEQ ID NO:5

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 25 amino acids

(B) TYPE: amino acid

(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION

Gly Ile Gly Lys Arg Thr Asn Glu His Thr Ala Asp Cys Lys Ile Lys  
1 5 10 15

(2) INFORMATION FOR SEQ ID NO:6  
(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 20 amino acids  
(B) TYPE: amino acid  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION

Gly Ile Gly Lys Arg Thr Asn Glu His Thr Ala Asp Cys Lys Ile Lys  
1 5 10 15

(2) INFORMATION FOR SEQ ID NO:7  
(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 15 amino acids  
(B) TYPE: amino acid  
(D) TOPOLOGY: linear

(xi) SEQUENCE 11

Gly	Ile	Gly	Lys	Arg	Thr	Asn	Glu	His	Thr	Ala	Asp	Cys	Lys	Ile
1				5					10					15

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8

(2) INFORMATION FOR SEQ ID NO:9  
(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 10 amino acids  
(B) TYPE: amino acid  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9

Arg Thr Asn Glu His Thr Ala Asp Cys Lys  
1 5 10

- (2) INFORMATION FOR SEQ ID NO:10  
 (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 16 amino acids  
 (B) TYPE: amino acid  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10

(xi) SEQUENCE 111

Leu His Lys Lys Ala Ala Glu Thr Leu Met Val Leu Asp Gln Asn Gln  
1 5 10 15

- (2) INFORMATION FOR SEQ ID NO:11  
(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 15 amino acids  
(B) TYPE: amino acid  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11

Leu His Lys Lys Ala Ala Glu Thr Leu Met Val Leu Asp Gln Asn  
1 5 10 15

- (2) INFORMATION FOR SEQ ID NO:12  
 (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 14 amino acids  
 (B) TYPE: amino acid  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12

Leu His Lys Lys Ala Ala Glu Thr Leu Met Val Leu Asp Gln  
1 5 10

- (2) INFORMATION FOR SEQ ID NO:13  
 (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 13 amino acids  
 (B) TYPE: amino acid  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:13

Leu His Lys Lys Ala Ala Glu Thr Leu Met Val Leu Asp  
1 5 10

- (2) INFORMATION FOR SEQ ID NO:14  
(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 23 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:14

Thr Ala Asp Cys Lys Ile Lys Pro Asn Thr Leu His Lys Lys Ala Ala  
1 5 10 15

Glu Thr Leu Met Val Leu Asp  
20

- (2) INFORMATION FOR SEQ ID NO:15
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 30 amino acids
    - (B) TYPE: amino acid
    - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:15

Arg Thr Asn Glu His Thr Ala Asp Cys Lys Ile Lys Pro Asn Thr Leu  
1 5 10 15

His Lys Lys Ala Ala Glu Thr Leu Met Val Leu Asp Gln Asn  
20 25 30

- (2) INFORMATION FOR SEQ ID NO:16
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 11 amino acids
    - (B) TYPE: amino acid
    - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:16

Arg Thr Asn Glu His Thr Ala Asp Cys Lys Ile  
1 5 10

- (2) INFORMATION FOR SEQ ID NO:17
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 90 base pairs
    - (B) TYPE: nucleic acid
    - (C) STRANDEDNESS: single
    - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:17

GGG ATC GGA AAA CGA ACA AAT GAA CAT ACG GCA GAT TGT AAA ATT AAA  
Gly Ile Gly Lys Arg Thr Asn Glu His Thr Ala Asp Cys Lys Ile Lys  
1 5 10 15

CCG AAC ACC TTG CAT AAA AAA GCT GCA GAG ACT TTA ATG GTC  
Pro Asn Thr Leu His Lys Lys Ala Ala Glu Thr Leu Met Val

48

90

0022334-0609

20

25

30

(2) INFORMATION FOR SEQ ID NO:18

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 75 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:18

GGG ATC GGA AAA CGA ACA AAT GAA CAT ACG GCA GAT TGT AAA ATT AAA 48  
Gly Ile Gly Lys Arg Thr Asn Glu His Thr Ala Asp Cys Lys Ile Lys  
1 5 10 15

CCG AAC ACC TTG CAT AAA AAA GCT GCA 75  
Pro Asn Thr Leu His Lys Lys Ala Ala  
20 25

(2) INFORMATION FOR SEQ ID NO:19

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 60 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:19

GGG ATC GGA AAA CGA ACA AAT GAA CAT ACG GCA GAT TGT AAA ATT AAA 48  
Gly Ile Gly Lys Arg Thr Asn Glu His Thr Ala Asp Cys Lys Ile Lys  
1 5 10 15

CCG AAC ACC TTG 60  
Pro Asn Thr Leu  
20

(2) INFORMATION FOR SEQ ID NO:20

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 45 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:20

GGG ATC GGA AAA CGA ACA AAT GAA CAT ACG GCA GAT TGT AAA ATT 45  
Gly Ile Gly Lys Arg Thr Asn Glu His Thr Ala Asp Cys Lys Ile  
1 5 10 15

(2) INFORMATION FOR SEQ ID NO:21

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 42 base pairs

- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:21

GGG ATC GGA AAA CGA ACA AAT GAA CAT ACG GCA GAT TGT AAA  
Gly Ile Gly Lys Arg Thr Asn Glu His Thr Ala Asp Cys Lys  
1 5 10

42

- (2) INFORMATION FOR SEQ ID NO:22
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 30 base pairs
    - (B) TYPE: nucleic acid
    - (C) STRANDEDNESS: single
    - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:22

CGA ACA AAT GAA CAT ACG GCA GAT TGT AAA  
Arg Thr Asn Glu His Thr Ala Asp Cys Lys  
1 5 10

30

- (2) INFORMATION FOR SEQ ID NO:23
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 108 base pairs
    - (B) TYPE: nucleic acid
    - (C) STRANDEDNESS: single
    - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:23

GGG ATC GGA AAA CGA ACA AAT GAA CAT ACG GCA GAT TGT AAA ATT AAA  
Gly Ile Gly Lys Arg Thr Asn Glu His Thr Ala Asp Cys Lys Ile Lys  
1 5 10 15

48

CCG AAC ACC TTG CAT AAA AAA GCT GCA GAG ACT TTA ATG GTC CTT GAC  
Pro Asn Thr Leu His Lys Lys Ala Ala Glu Thr Leu Met Val Leu Asp  
20 25 30

96

CAA AAT GAA CCA  
Gln Asn Gln Pro  
35

108

- (2) INFORMATION FOR SEQ ID NO:24
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 10 amino acids
    - (B) TYPE: amino acid
    - (D) TOPOLOGY: linear

(ix) FEATURE:

- (A) NAME/KEY: Modified site
- (B) LOCATION: ...2

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(ix) FEATURE:

- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:24

(2) INFORMATION FOR SEQ ID NO:25

- (ix) FEATURE:

- (ix) FEATURE:

- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:25

(2) INFORMATION FOR SEQ ID NO:26

- (ix) FEATURE:

- (ix) FEATURE:

- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:26

Xaa Thr Gln Glu His Thr Ala Glu Cys Xaa  
1 5 10



(2) INFORMATION FOR SEQ ID NO:27

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 10 amino acids  
(B) TYPE: amino acid  
(D) TOPOLOGY: linear

(ix) FEATURE:

- (A) NAME/KEY: Modified site  
(B) LOCATION: ...2  
(D) OTHER INFORMATION: /note= "Xaa is N-acetyl arginine"

(ix) FEATURE:

- (A) NAME/KEY: Modified site  
(B) LOCATION: 9...  
(D) OTHER INFORMATION: /note= "Xaa is lysinamide"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:27

Xaa Thr Gln Glu His Thr Ala Asp Cys Xaa  
1 5 10

(2) INFORMATION FOR SEQ ID NO:28

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 10 amino acids  
(B) TYPE: amino acid  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:28

Arg Thr Asn Glu His Thr Ala Glu Cys Lys  
1 5 10

(2) INFORMATION FOR SEQ ID NO:29

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 10 amino acids  
(B) TYPE: amino acid  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:29

Arg Thr Gln Glu His Thr Ala Glu Cys Lys  
1 5 10

(2) INFORMATION FOR SEQ ID NO:30

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 10 amino acids  
(B) TYPE: amino acid  
(D) TOPOLOGY: linear

Arg Thr Gln Glu His Thr Ala Asp Cys Lys  
1 5 10

- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:31

CGA ACA AAT GAA CAT ACG GCA GAA TGT AAA  
Arg Thr Asn Glu His Thr Ala Glu Cys Lys  
1 5 10

- 1  
(2) INFORMATION FOR SEQ ID NO:32  
5  
(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 30 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:32

CGA ACA CAA GAA CAT ACG GCA GAA TGT AAA 30  
Arg Thr Gln Glu His Thr Ala Glu Cys Lys  
1 5 10

- (2) INFORMATION FOR SEQ ID NO:33  
(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 30 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:33

CGA ACA CAA GAA CAT ACG GCA GAT TGT AAA  
Arg Thr Gln Glu His Thr Ala Asp Cys Lys  
1 5 10

- (2) INFORMATION FOR SEQ ID NO:34  
(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 10 amino acids  
(B) TYPE: amino acid  
(D) TOPOLOGY: linear

(ix) FEATURE:

- FEATURE:  
(A) NAME/KEY: Modified site  
(B) LOCATION: ...2  
(D) OTHER INFORMATION: /note= "Xaa is N-acetyl alanine"

(ix) FEATURE:

- (A) NAME/KEY: Modified site
- (B) LOCATION: 9...
- (D) OTHER INFORMATION: /note= "Xaa is lysinamide"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:34

Xaa Thr Asn Glu His Thr Ala Asp Cys Xaa  
 1 5 10

(2) INFORMATION FOR SEQ ID NO:35

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

(ix) FEATURE:

- (A) NAME/KEY: Modified site
- (B) LOCATION: ...2
- (D) OTHER INFORMATION: /note= "Xaa is N-acetyl arginine"

(ix) FEATURE:

- (A) NAME/KEY: Modified site
- (B) LOCATION: 9...
- (D) OTHER INFORMATION: /note= "Xaa is lysinamide"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:35

Xaa Thr Gln Ala His Thr Ala Asp Cys Xaa  
 1 5 10

(2) INFORMATION FOR SEQ ID NO:36

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

(ix) FEATURE:

- (A) NAME/KEY: Modified site
- (B) LOCATION: ...2
- (D) OTHER INFORMATION: /note= "Xaa is N-acetyl arginine"

(ix) FEATURE:

- (A) NAME/KEY: Modified site
- (B) LOCATION: 9...
- (D) OTHER INFORMATION: /note= "Xaa is lysinamide"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:36

Xaa Thr Asn Glu Ala Thr Ala Asp Cys Xaa  
 1 5 10

(2) INFORMATION FOR SEQ ID NO:37

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

(ix) FEATURE:

- (A) NAME/KEY: Modified site
- (B) LOCATION: ...2
- (D) OTHER INFORMATION: /note= "Xaa is N-acetyl arginine"

(ix) FEATURE:

- (A) NAME/KEY: Modified site
- (B) LOCATION: 9...
- (D) OTHER INFORMATION: /note= "Xaa is lysinamide"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:37

Xaa Thr Asn Glu His Thr Ala Ala Cys Xaa  
1                      5                      10

(2) INFORMATION FOR SEQ ID NO:38

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

(ix) FEATURE:

- (A) NAME/KEY: Modified site
- (B) LOCATION: ...2
- (D) OTHER INFORMATION: /note= "Xaa is N-acetyl arginine"

(ix) FEATURE:

- (A) NAME/KEY: Modified site
- (B) LOCATION: 9...
- (D) OTHER INFORMATION: /note= "Xaa is alaninamide"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:38

Xaa Thr Asn Glu His Thr Ala Asp Cys Xaa  
1                      5                      10

(2) INFORMATION FOR SEQ ID NO:39

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

(ix) FEATURE:

- (A) NAME/KEY: Modified site
- (B) LOCATION: ...2
- (D) OTHER INFORMATION: /note= "Xaa is N-acetyl arginine"

(ix) FEATURE:

- (A) NAME/KEY: Modified site
- (B) LOCATION: 9...
- (D) OTHER INFORMATION: /note= "Xaa is lysinamide"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:39

Xaa Ala Asn Glu His Thr Ala Asp Cys Xaa  
1 5 10

(2) INFORMATION FOR SEQ ID NO:40

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

(ix) FEATURE:

- (A) NAME/KEY: Modified site
- (B) LOCATION: ...2
- (D) OTHER INFORMATION: /note= "Xaa is N-acetyl arginine"

(ix) FEATURE:

- (A) NAME/KEY: Modified site
- (B) LOCATION: 9...
- (D) OTHER INFORMATION: /note= "Xaa is lysinamide"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:40

Xaa Thr Ala Glu His Thr Ala Asp Cys Xaa  
1 5 10

(2) INFORMATION FOR SEQ ID NO:41

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

(ix) FEATURE:

- (A) NAME/KEY: Modified site
- (B) LOCATION: ...2
- (D) OTHER INFORMATION: /note= "Xaa is N-acetyl arginine"

(ix) FEATURE:

- (A) NAME/KEY: Modified site
- (B) LOCATION: 9...
- (D) OTHER INFORMATION: /note= "Xaa is lysinamide"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:41

Xaa Thr Asn Glu His Ala Ala Asp Cys Xaa  
1 5 10

(2) INFORMATION FOR SEQ ID NO:42

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

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(ix) FEATURE:

- (A) NAME/KEY: Modified site
- (B) LOCATION: ...2
- (D) OTHER INFORMATION: /note= "Xaa is N-acetyl arginine"

(ix) FEATURE:

- (A) NAME/KEY: Modified site
- (B) LOCATION: 9...
- (D) OTHER INFORMATION: /note= "Xaa is lysinamide"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:42

Xaa Thr Asn Glu His Thr Gly Asp Cys Xaa  
1                      5                      10

(2) INFORMATION FOR SEQ ID NO:43

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

(ix) FEATURE:

- (A) NAME/KEY: Modified site
- (B) LOCATION: ...2
- (D) OTHER INFORMATION: /note= "Xaa is N-acetyl arginine"

(ix) FEATURE:

- (A) NAME/KEY: Modified site
- (B) LOCATION: 9...
- (D) OTHER INFORMATION: /note= "Xaa is lysinamide"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:43

Xaa Thr Asn Glu His Thr Ala Asp Tyr Xaa  
1                      5                      10

(2) INFORMATION FOR SEQ ID NO:44

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

(ix) FEATURE:

- (A) NAME/KEY: Modified site
- (B) LOCATION: ...2
- (D) OTHER INFORMATION: /note= "Xaa is N-acetyl arginine"

(ix) FEATURE:

- (A) NAME/KEY: Modified site
- (B) LOCATION: 9...
- (D) OTHER INFORMATION: /note= "Xaa is lysinamide"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:44

0033354-060290

Xaa Thr Gln Glu His Thr Ala Glu Ala Xaa  
1 5 10

(2) INFORMATION FOR SEQ ID NO:45

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 10 amino acids  
(B) TYPE: amino acid  
(D) TOPOLOGY: linear

(ix) FEATURE:

- (A) NAME/KEY: Modified site  
(B) LOCATION: ...2  
(D) OTHER INFORMATION: /note= "Xaa is N-acetyl arginine"

(ix) FEATURE:

- (A) NAME/KEY: Modified site  
(B) LOCATION: 9...  
(D) OTHER INFORMATION: /note= "Xaa is lysinamide"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:45

Xaa Thr Gln Glu His Thr Ala Glu Tyr Xaa  
1 5 10

(2) INFORMATION FOR SEQ ID NO:46

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 10 amino acids  
(B) TYPE: amino acid  
(D) TOPOLOGY: linear

(ix) FEATURE:

- (A) NAME/KEY: Modified site  
(B) LOCATION: ...2  
(D) OTHER INFORMATION: /note= "Xaa is N-acetyl arginine"

(ix) FEATURE:

- (A) NAME/KEY: Modified site  
(B) LOCATION: 9...  
(D) OTHER INFORMATION: /note= "Xaa is lysinamide"

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:46

Xaa Thr Gln Glu His Thr Ala Glu Ser Xaa  
1 5 10

(2) INFORMATION FOR SEQ ID NO:47

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 10 amino acids  
(B) TYPE: amino acid  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:47

662297-4532260

Arg Ala Asn Glu His Thr Ala Asp Cys Lys  
1 5 10

- (2) INFORMATION FOR SEQ ID NO:48  
 (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 10 amino acids  
 (B) TYPE: amino acid  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:48

Arg Thr Ala Glu His Thr Ala Asp Cys Lys  
1 5 10

- (2) INFORMATION FOR SEQ ID NO:49  
 (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 10 amino acids  
 (B) TYPE: amino acid  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:49

Arg Thr Asn Glu His Ala Ala Asp Cys Lys  
1 5 10

- (2) INFORMATION FOR SEQ ID NO:50  
 (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 10 amino acids  
 (B) TYPE: amino acid  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:50

Arg Thr Asn Glu His Thr Gly Asp Cys Lys  
1 5 10

- (2) INFORMATION FOR SEQ ID NO:51  
 (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 10 amino acids  
 (B) TYPE: amino acid  
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:51

Arg Thr Asn Glu His Thr Ala Asp Tyr Lys  
1 5 10

- (2) INFORMATION FOR SEQ ID NO:52  
(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 10 amino acids



- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:52

Arg Thr Gln Glu His Thr Ala Glu Ala Lys  
1 5 10

- (2) INFORMATION FOR SEQ ID NO:53
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 10 amino acids
    - (B) TYPE: amino acid
    - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:53  
Arg Thr Gln Glu His Thr Ala Glu Tyr Lys  
1 5 10

- (2) INFORMATION FOR SEQ ID NO:54
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 10 amino acids
    - (B) TYPE: amino acid
    - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:54

Arg Thr Gln Glu His Thr Ala Glu Ser Lys  
1 5 10

- (2) INFORMATION FOR SEQ ID NO:55
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 30 base pairs
    - (B) TYPE: nucleic acid
    - (C) STRANDEDNESS: single
    - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:55

CGA GCA AAT GAA CAT ACG GCA GAT TGT AAA  
Arg Ala Asn Glu His Thr Ala Asp Cys Lys  
1 5 10

30

- (2) INFORMATION FOR SEQ ID NO:56
  - (i) SEQUENCE CHARACTERISTICS:
    - (A) LENGTH: 30 base pairs
    - (B) TYPE: nucleic acid
    - (C) STRANDEDNESS: single
    - (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:56

662090"4582260

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CGA ACA GCA GAA CAT ACG GCA GAT TGT AAA  
Arg Thr Ala Glu His Thr Ala Asp Cys Lys  
1 5 10

- (2) INFORMATION FOR SEQ ID NO:57  
(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 30 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:57

30

CGA ACA AAT GAA CAT GCA GCA GAT TGT AAA  
Arg Thr Asn Glu His Ala Ala Asp Cys Lys  
1 5 10

- (2) INFORMATION FOR SEQ ID NO:58  
(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 30 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:58

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CGA ACA AAT GAA CAT ACA GGG GAT TGT AAA  
Arg Thr Asn Glu His Thr Gly Asp Cys Lys  
1 5 10

- (2) INFORMATION FOR SEQ ID NO:59  
(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 30 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:59

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CGA ACA AAT GAA CAT ACA GCA GAT TAT AAA  
Arg Thr Asn Glu His Thr Ala Asp Tyr Lys  
1 5 10

- (2) INFORMATION FOR SEQ ID NO:60  
(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 30 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:60

0032354100299

CGA ACA CAA GAA CAT ACA GCA GAA GCA AAA  
Arg Thr Gln Glu His Thr Ala Glu Ala Lys  
1 5 10

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- (2) INFORMATION FOR SEQ ID NO:61  
(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 30 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:61

CGA ACA CAA GAA CAT ACA GCA GAA TAT AAA  
Arg Thr Gln Glu His Thr Ala Glu Tyr Lys  
1 5 10

30

- (2) INFORMATION FOR SEQ ID NO:62  
(i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 30 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:62

CGA ACA CAA GAA CAT ACA GCA GAA TCT AAA  
Arg Thr Gln Glu His Thr Ala Glu Ser Lys  
1 5 10

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